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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

HENN, TIMOTHY J

ART UNIT

PAPER NUMBER

2622

MAIL DATE

DELIVERY MODE

07/24/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/688,657	Applicant(s) LUO, QIANG	
	Examiner Timothy J. Henn	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,10-15 and 17-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,10-15,17-20,22 and 24 is/are rejected.
- 7) ☒ Claim(s) 21,23 and 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 06 May 2008 have been fully considered but they are not persuasive. Applicant has amended claims 1, 8 and 15 to recite that the crosstalk is corrected using crosstalk coefficients based on a number of times the color is included in a group of adjacent pixels immediately surrounding the first pixel, and argues that Olding does not teach or suggest this limitation. However, the system of Olding uses actual sensor data which reflects how the imaging system distorts a test image in the image capturing process (c. 7, ll. 40-57). From this data, coefficients are determined to correct for distortions such as electrical crosstalk (e.g. Figure 3). Since the actual sensor data for a pixel is affected by the surrounding pixels (e.g. the number of times a color is included in the surrounding pixels will change the resulting image signal for the pixel due to crosstalk between the pixels), the system of Olding does correct the crosstalk "based on a number of times the color is included in the group of adjacent pixels" as claimed. Since claims 1, 8 and 15 do not define how the number of times the color is included in the surrounding group is factored into the crosstalk correction, Olding meets the limitations as claimed.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3-8, 10-15, 17-20, 22 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Olding et al. (US 6,970,597).

[claim 8]

Regarding claim 8, Olding discloses an apparatus for reducing charge diffusion crosstalk (i.e. electrical crosstalk) in an image sensor having a plurality of pixels disposed in a substrate and a color filter mask positioned over the plurality of pixels such that each pixel is covered with a monochromatic filter of a certain color and that no two adjacent pixels have filters of the same color (Figure 1, Item 10), comprising: means for inputting crosstalk coefficients for a first pixel of a first color for reducing diffusion crosstalk by electronics migrating to the first pixel from adjacent pixels of colors that are different from the first color (Figure 6, Step 708; c. 13, l. 25 - c. 14, l. 19; note that the kernels are designed to reduce all imaging artifacts, including electrical crosstalk, c. 7, ll. 41-57; c. 25, ll. 51-60); means for sampling the first pixel to produce a first measured pixel value (Figure 6, Item 722; i.e. reading image sensor data; c. 13, ll. 25-41); means for sampling a group of adjacent pixels immediately surrounding the first pixel to produce adjacent measured pixel values (Figure 6, Item 722; i.e. reading image sensor data; c. 13, ll. 25-41); and means for applying the crosstalk coefficients to the first measured pixel value and the adjacent measured pixel values to generate a calculated first pixel value that is corrected for charge diffusion crosstalk (Figure 6; c. 13, l. 25 - c.

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14, l. 19), wherein each diffusion crosstalk coefficient corrects for an amount of crosstalk between the first pixel and the one or more pixels in the group of adjacent pixels that have the same color based on a number of times the color is included in the group of adjacent pixels immediately surrounding the first pixel (Figure 3; note that the applied coefficients are derived from actual sensor data, the values of which are affected by the number of times pixels of a same color is included in the group of pixels immediately surrounding a first pixel as claimed).

[claim 10]

Regarding claim 10, Olding discloses a group of adjacent pixels of different colors are of two colors that are different from the first color (e.g. Figure 8, note the presence of B and G pixels in the Red pixel neighborhood).

[claim 11]

Regarding claim 11, Olding discloses applying color correction coefficients to the first measured pixel value and the adjacent pixel values such that the first pixel color filter spectral response is improved in the first measured pixel value (Figure 6, Step 708; c. 13, l. 25 - c. 14, l. 19; note that the kernels are designed to reduce all imaging artifacts, including distortion caused by the color filter pattern, c. 7, ll. 41-57; c. 25, ll. 51-60).

[claim 12]

Regarding claim 12, Olding discloses a combining the crosstalk coefficients and color correction coefficients (i.e. the same coefficients are used to accomplish both;

Figure 6, convolution kernels).

[claim 13]

Regarding claim 13, Olding discloses combining the crosstalk coefficients and color correction coefficients before applying the coefficients to the first measured pixel value (Figure 6; note that the coefficients are determined and stored prior to their application).

[claim 14]

Regarding claim 14, note that Olding does not disclose the use of any multiplier means or adder means in use of the coefficients, instead a single processing device is used to multiply and add (c. 13, ll. 26-67).

[claims 1 and 3-7]

Claims 1 and 3-7 are method claims corresponding to apparatus claims 8 and 10-14. Therefore, claims 1 and 3-7 are analyzed and rejected as previously discussed with respect to claims 8 and 10-14.

[claims 15 and 17-19]

Regarding claims 15 and 17-19, see claims 8, 10, 11 and 14 respectively.

[claims 20, 22 and 24]

Regarding claims 20, 22 and 24, Olding discloses monochromatic filters comprising red, green and blue color filters (Figure 1, Item 10).

Allowable Subject Matter

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4. Claims 21, 23 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

[claims 21, 23 and 25]

Regarding claims 21, 23 and 25 the prior art does not teach or fairly suggest applying crosstalk coefficients as defined by the claimed equation. While crosstalk coefficients in the form of a matrix are known (see for example, Olding), these crosstalk coefficients are not defined in the claimed manner.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Henn whose telephone number is (571)272-7310. The examiner can normally be reached on M-F 11-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye can be reached on (571) 272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Timothy J Henn/
Primary Examiner, Art Unit 2622